ONTARIO MINISTRY OF ENVIRONMENT
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Gordon J. Hopkins

NANTICOKE WATER CHEMISTRY

1973

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Ministry of the Environment

The Honourable
William G. Newman,
Minister

Everett Biggs,
Deputy Minister

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NANTICOKE WATER CHEMISTRY

1973

Ontario Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario

Prepared by:
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D. H. Kennedy
Water Resources Branch
January 1975

ABSTRACT

The Nanticoke water quality survey program continued in 1973 with monthly collection of samples at nine sampling locations from June to November. The collected samples were analysed and chemical parameters were tested for temporal and spatial variation. There is a pronounced seasonal difference between parameters. On the other hand, the difference between stations is, in most cases, not significant. Also tested were yearly variations of five chemical parameters for the time period 1970-73. The year to year variation of the chemical parameters is significant, but no trend can be established.

INTRODUCTION

The Nanticoke sampling grid consists of nine stations, eight from the initial 1968 pilot survey and station 1040 located near Ontario Hydro's outfall. Seven surveys were completed in 1973 covering the period June to November inclusive. Besides the standard number of parameters (conductivity, turbidity, DO, pH, nitrogen, and phosphorus) samples were also analysed for chlorophyll a, chlorides, total iron and phenol. Background data were also collected on heavy metals, BOD, total solids, COD, TOC, sulphate, fluoride, cyanide and hydrogen sulfide. Surface and bottom water samples were taken at all stations except 1040, 1008, and 518 where mid-depth samples only were secured. This ongoing study was designed to provide background chemical water quality data and its related variation in the Nanticoke area before the onset of the proposed industrial development and to determine if any change in water chemistry is apparent.

SURVEY OPERATION

As in previous years, all nine stations were transited in and marked with spar buoys to ensure identical station locations for all sampling agencies. The location of all sampling stations is shown in Figure 1. All analyses were performed at MOE's main laboratory in Toronto except temperature and DO which were tested onboard the survey vessel. Chemical preservatives were used for the heavy metals, phenols, and chlorophyll and all nutrient samples were frozen using dry ice.

RESULTS

A summary of parameter means and standard deviations are presented in Tables 1 to 4. The complete set of values is given in Appendix I, Tables 1 to 17. DO data are not included in the tables as they are rather sketchy. Index of variation (standard deviation x 100/mean) is also given in Tables 5 and 6. A graphical depiction of temporal variation in total phosphorus and total nitrogen is presented in Figures 2 and 3 respectively.

ANALYSIS OF 1973 DATA

The temporal and spatial differences were tested by analysis of variance techniques with the results shown in Table 7. There is a significant month-to-month difference for all parameters except chloride. A graphical depiction of the monthly means for phosphorus and nitrogen is shown in Figures 2 and 3. The cumulative histogram in both instances indicate a marked reduction in nutrient levels occurring in late summer as sedimentation takes place in the biomass. The mid-summer lag in nutrient levels varied little from the results obtained in previous years. The spatial differences are not so pronounced as can be seen from Table 7. There is a significant difference between stations for five of the fourteen tested parameters. The spatial differences do change throughout the season (see Table 5) but no simple conclusion can be made.

Virtually no chemical stratification existed in the area, although the temperature stratification is detectable. A significant difference exists (at 0.1 probability) between top and bottom temperatures for June, July, August and September. The differences between the top and bottom chemical samples is not so pronounced. The only significant difference was found for conductivity, total nitrogen,

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Kjeldahl nitrogen and NO_3 samples collected in September. For all other months and parameters the difference between top and bottom values is not significant.

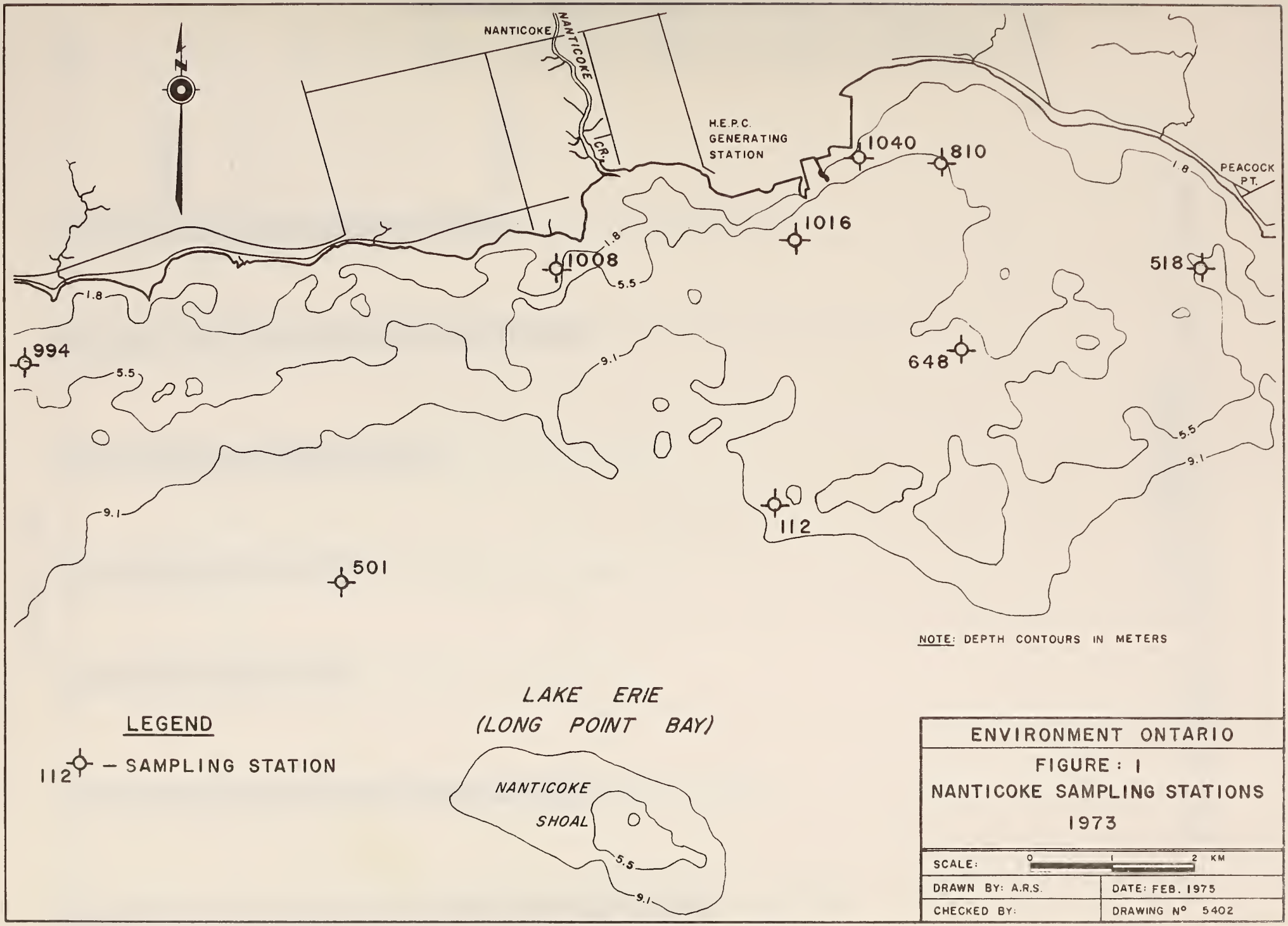
YEAR-TO-YEAR CHANGES 1970-73

The differences between conductivity, pH, turbidity, total phosphorus and total nitrogen were tested for significance by two-way parametric analysis of variance. As shown in Table 8, the difference between years is generally significant. On the other hand, differences between stations for same time intervals is significant only for turbidity and total phosphorus. More detailed analysis of the differences of yearly means for those five chemical parameters is shown in Table 9. In most cases, the difference is significant. As typical, the variation of conductivity between 1969 and 1973 is shown in Figure 4. The mean values as well as 95 percent confidence limits are shown in this figure. The changes between years and seasonal variations are evident.

To determine the mean time changes (trend) of the parameters, the linear relationship was considered. This is shown in Figure 4 for conductivity. Linear correlation line is drawn as the full line. The broken lines are the limiting values of the line at 95 percent confidence level. It can be seen that the slope of the limiting line is always negative. Similarly, calculated limiting slopes for 99 percent confidence level reach negative as well as positive values. It is, therefore, 95 percent (but not 99 percent) sure that the conductivity has, in the mean, decreased between 1969 and 1973. In Table 10, the values of the slopes and their limiting values for the four chemical parameters are shown. The variation of the slopes is considerable and more data are needed to determine the trend more precisely.

CONCLUSION

As confirmed in the previous years, the seasonal variation for most of the chemical parameters is significant. The difference between stations on the other hand is not so certain. There appear to be some significant differences between the results obtained during 1970 and 1973, but to establish the long term trend, more data are needed.


NANTICOKE
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CR.
H.E.P.C.
GENERATING
STATION
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1.8
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NOTE: DEPTH CONTOURS IN METERS
LAKE ERIE
(LONG POINT BAY)
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112 — SAMPLING STATION
ENVIRONMENT ONTARIO
FIGURE : 1
NANTICOKE SAMPLING STATIONS
1973
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FIGURE : 2 NANTICOKE AREA SEASONAL VARIATION 1973
PHOSPHORUS AS P

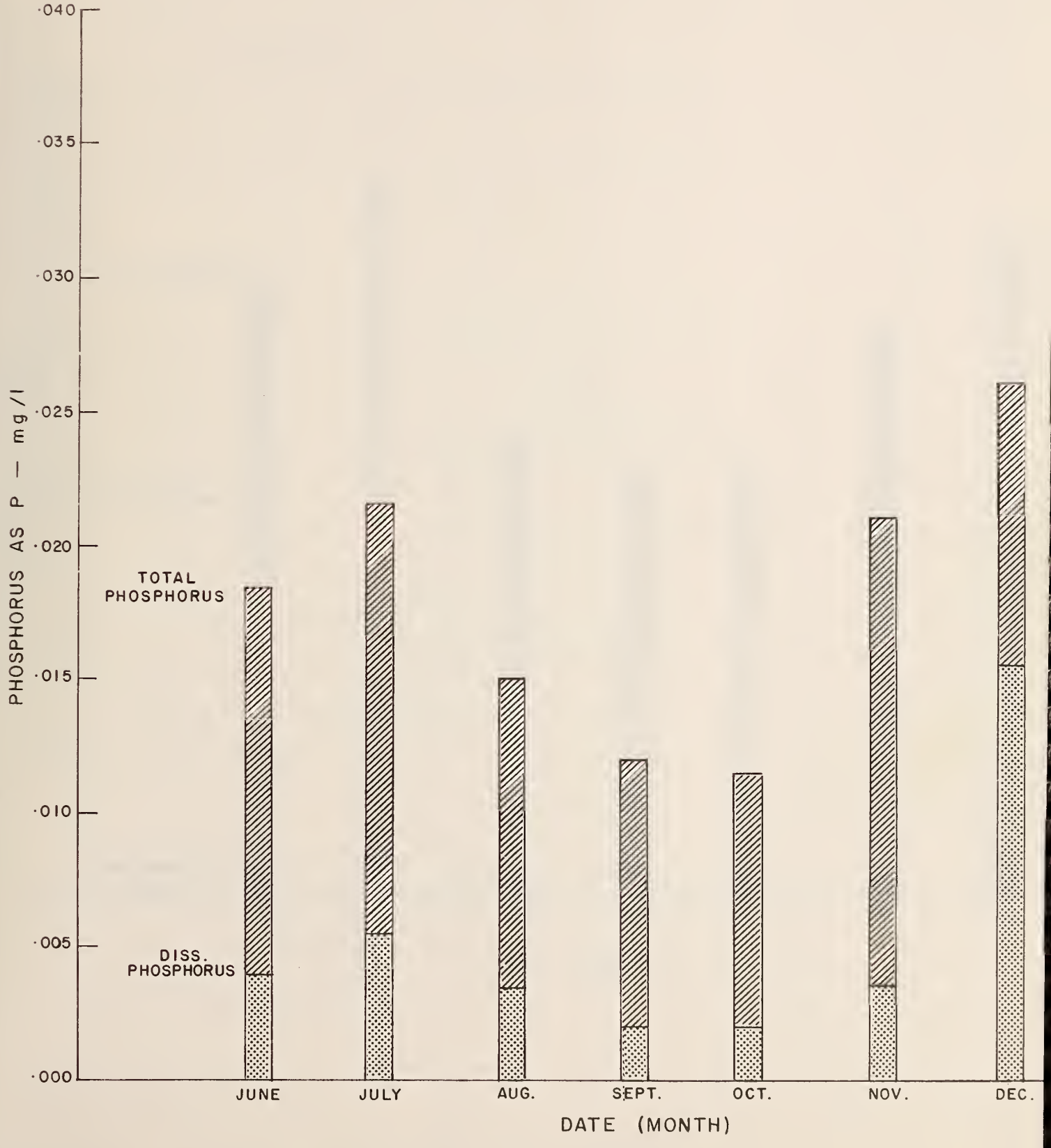

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FIGURE : 3 NANTICOKE AREA SEASONAL VARIATION 1973

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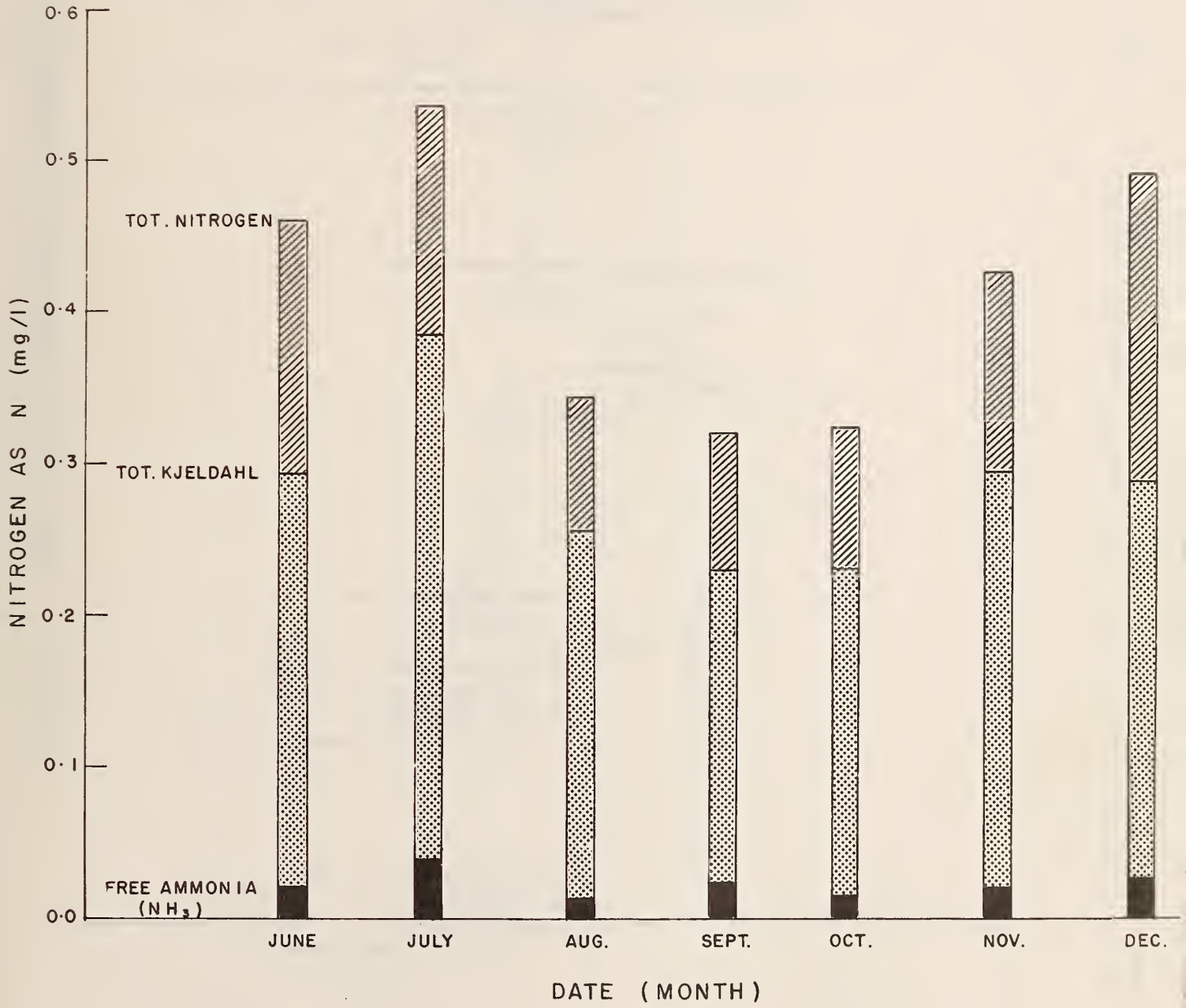

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FIGURE : 4 1969 — 1973 VARIATION OF CONDUCTIVITY

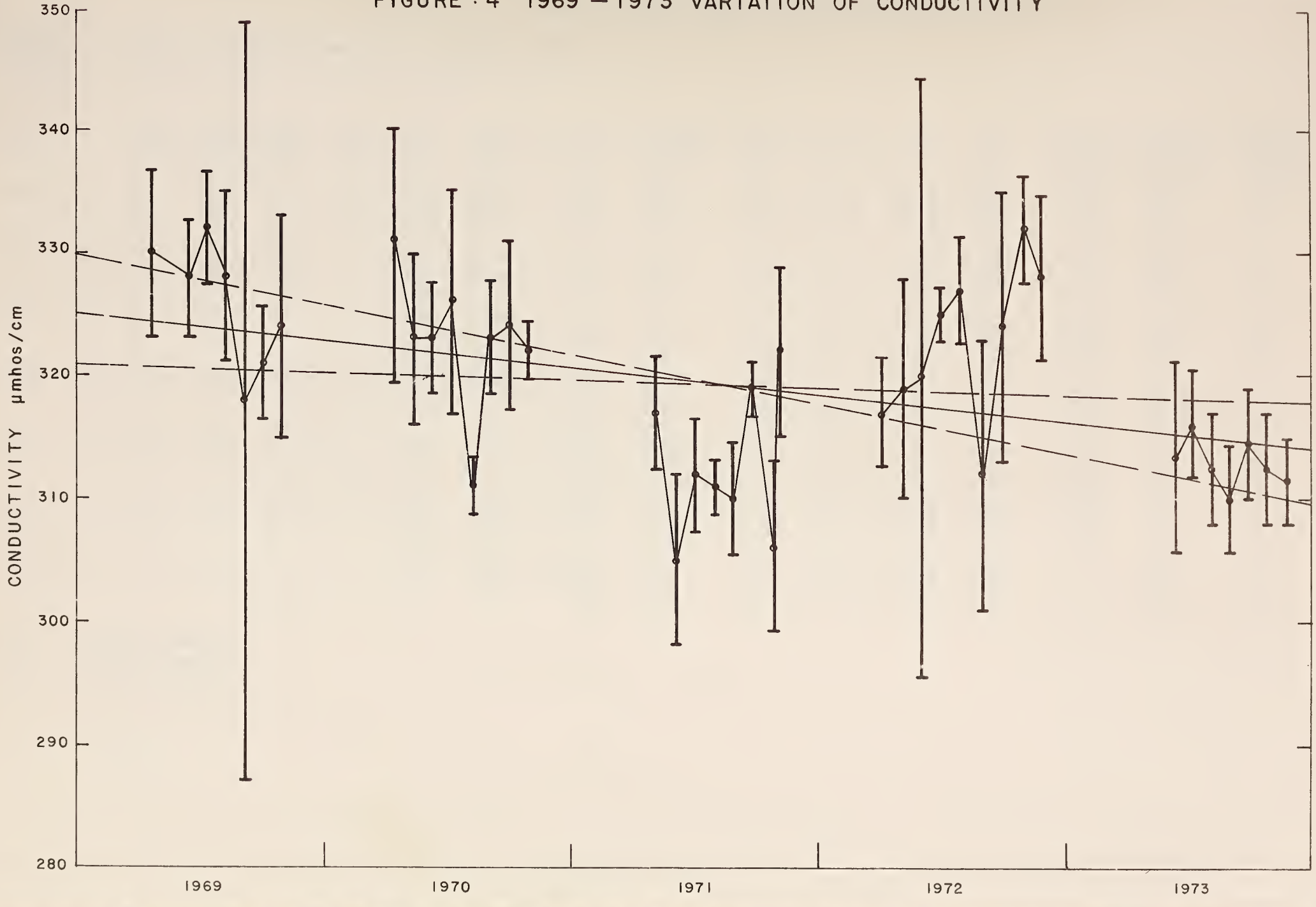

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TABLE 1: Summary of Results, Mean Value per Date, 1973.

Date		Temp °C	Cond umhos/cm	Turb FTU	pH SU	Tot P mg/l	Diss P mg/l	Tot N mg/l	Tot Kjeld mg/l	T Org N mg/l	NO_3 mg/l	NH_3 mg/l	NO_2 mg/l	Tot Iron mg/l	Chloride mg/l	Phenol ug/l
Jun 11	A	12.2	313	4.0	8.2	0.017	0.004	0.450	0.29	0.26	0.16	0.022	0.003	0.17	24	6
	B	10.2	314	4.0	8.2	0.020	0.004	0.466	0.30	0.27	0.17	0.025	0.002	0.17	24	6
Jul 9	A	19.3	316	4.5	8.2	0.020	0.005	0.511	0.37	0.33	0.14	0.034	0.004	0.12	24	1
	B	17.4	316	4.5	8.1	0.023	0.006	0.557	0.40	0.36	0.15	0.047	0.005	0.11	24	1
Aug 7	A	21.7	312	1.7	8.3	0.016	0.004	0.336	0.25	0.23	0.08	0.016	0.006	0.06	23	9
	B	20.1	313	1.7	8.3	0.014	0.003	0.350	0.26	0.24	0.09	0.015	0.006	0.06	23	8
Sep 4	A	24.8	309	1.4	8.2	0.011	0.002	0.300	0.22	0.20	0.07	0.019	0.005	0.12	23	-
	B	22.7	311	1.8	8.1	0.013	0.002	0.337	0.24	0.21	0.09	0.026	0.006	0.11	23	-
Oct 1	A	17.2	314	2.7	8.1	0.012	0.002	0.324	0.23	0.22	0.08	0.017	0.006	0.15	24	1
	B	16.5	315	3.6	8.1	0.011	0.002	0.322	0.23	0.22	0.08	0.013	0.006	0.19	24	2
Oct 31	A	12.2	312	5.8	8.3	0.021	0.004	0.420	0.30	0.28	0.12	0.020	0.004	0.24	24	0
	B	11.8	313	6.5	8.3	0.021	0.003	0.434	0.29	0.27	0.14	0.019	0.004	0.27	23	0
Nov 28	A	7.9	312	8.3	8.1	0.025	0.015	0.472	0.28	0.25	0.19	0.024	0.005	-	23	2
	B	7.7	311	9.8	8.1	0.027	0.016	0.503	0.30	0.27	0.20	0.029	0.006	-	23	2

A . . . Surface Samples
B . . . Bottom Samples

TABLE 2: Summary of Results, Standard Deviation per Date, 1973.

Date		Temp °C	Cond umhos/cm	Turb FTU	pH SU	Tot P mg/l	Diss P mg/l	Tot N mg/l	Tot Kjeld mg/l	T Org N mg/l	NO_3 mg/l	NH_3 mg/l	NO_2 mg/l	Tot Iron mg/l	Chloride mg/l	Phenol ug/l
Jun 11	A	1.1	4	1.8	0.1	0.004	0.001	0.040	0.02	0.02	0.02	0.010	0.001	0.07	0.3	3
	B	0.9	3	1.1	0.1	0.003	0.001	0.042	0.03	0.03	0.02	0.008	0.001	0.06	0.5	3
Jul 9	A	1.3	2	2.3	0.2	0.006	0.002	0.069	0.05	0.04	0.03	0.016	0.001	0.07	1.0	1
	B	1.4	2	1.8	0.1	0.005	0.002	0.064	0.06	0.06	0.02	0.020	0.001	0.07	1.0	1
Aug 7	A	0.8	2	0.6	0.1	0.004	0.003	0.045	0.05	0.05	0.01	0.007	0.001	0.01	0.0	3
	B	0.8	2	0.6	0.2	0.004	0.001	0.042	0.04	0.05	0.01	0.005	0.002	0.01	0.5	2
Sep 4	A	0.5	2	0.5	0.4	0.003	0.001	0.021	0.01	0.01	0.02	0.008	0.001	0.04	1.3	-
	B	1.2	2	0.6	0.5	0.002	0.001	0.039	0.03	0.02	0.02	0.011	0.001	0.05	0.9	-
Oct 1	A	0.1	2	1.5	0.1	0.002	0.000	0.050	0.05	0.04	0.01	0.007	0.001	0.09	0.6	2
	B	1.6	2	2.0	0.1	0.002	0.001	0.015	0.01	0.01	0.01	0.005	0.001	0.11	0.4	3
Oct 31	A	0.9	2	2.9	0.1	0.003	0.002	0.030	0.04	0.04	0.02	0.000	0.000	0.11	0.5	0
	B	0.6	2	3.5	0.1	0.006	0.001	0.095	0.05	0.06	0.06	0.004	0.001	0.16	0.5	0
Nov 28	A	0.5	2	4.4	0.0	0.007	0.005	0.135	0.08	0.08	0.06	0.011	0.002	-	1.1	2
	B	0.5	2	5.9	0.0	0.010	0.006	0.126	0.06	0.05	0.07	0.013	0.002	-	1.0	2

A . . . Surface Samples
B . . . Bottom Samples

TABLE 3: Summary of Results: Mean Value per Station, 1973.

Station		Temp °C	Cond umhos/cm	Turb FTU	pH SU	Tot P mg/l	Diss P mg/l	Tot N mg/l	Tot Kjeld mg/l	T Org N mg/l	NO_3 mg/l	NH_3 mg/l	NO_2 mg/l	Tot Iron mg/l	Chloride mg/l	Phenol ug/l
112	A	13.7	312	1.6	8.2	0.014	0.004	0.363	0.26	0.24	0.10	0.017	0.005	0.09	24	4
	B	16.7	311	2.1	8.2	0.018	0.006	0.418	0.31	0.29	0.11	0.020	0.005	0.05	23	0
501	A	17.4	310	1.5	8.3	0.014	0.005	0.340	0.24	0.22	0.09	0.020	0.005	0.06	24	3
	B	15.2	314	2.2	8.2	0.015	0.004	0.387	0.27	0.25	0.12	0.020	0.005	0.09	24	3
518	C	-	314	5.2	8.2	0.018	0.006	0.410	0.27	0.25	0.13	0.026	0.005	0.17	24	4
648	A	17.0	311	1.8	8.3	0.014	0.006	0.339	0.23	0.22	0.10	0.014	0.005	0.07	23	2
	B	17.0	313	2.3	8.3	0.014	0.004	0.386	0.27	0.25	0.11	0.019	0.005	0.07	23	2
810	A	16.9	314	4.7	8.2	0.018	0.005	0.428	0.29	0.26	0.13	0.029	0.005	0.17	23	4
	B	15.1	313	5.2	8.3	0.019	0.005	0.425	0.28	0.24	0.14	0.031	0.005	0.20	24	3
994	A	16.5	313	4.8	8.2	0.019	0.005	0.430	0.30	0.28	0.13	0.019	0.005	0.16	24	3
	B	14.8	315	5.3	7.9	0.020	0.005	0.466	0.32	0.29	0.14	0.029	0.004	0.16	23	4
1008	C	15.8	313	5.4	8.2	0.021	0.004	0.423	0.29	0.27	0.13	0.020	0.004	0.19	23	3
1016	A	18.0	311	4.4	8.1	0.015	0.005	0.428	0.30	0.28	0.12	0.023	0.005	0.15	24	3
	B	15.9	312	5.8	8.1	0.019	0.006	0.475	0.32	0.29	0.15	0.030	0.006	0.13	24	3
1040	C	15.5	313	5.9	8.1	0.021	0.005	0.435	0.29	0.26	0.14	0.029	0.005	0.18	24	4

A . . . Surface Samples
B . . . Bottom Samples
C . . . Mid-depth Samples

TABLE 4: Summary of Results: Standard Deviation per Station, 1973.

Station		Temp °C	Cond umhos/cm	Turb FTU	pH SU	Tot P mg/l	Diss P mg/l	Tot N mg/l	Tot Kjeld mg/l	T Org N mg/l	NO_3 mg/l	NH_3 mg/l	NO_2 mg/l	Tot Iron mg/l	Chloride mg/l	Phenol ug/l
112	A	7.3	2	0.7	0.3	0.005	0.005	0.070	0.06	0.06	0.02	0.008	0.002	0.05	0.5	5
	B	7.5	3	1.1	0.1	0.007	0.003	0.120	0.11	0.10	0.02	0.010	0.002	0.00	0.6	0
501	A	6.0	4	0.9	0.3	0.006	0.003	0.069	0.05	0.05	0.03	0.009	0.002	0.03	0.8	4
	B	5.2	2	1.3	0.1	0.006	0.002	0.072	0.05	0.05	0.03	0.009	0.002	0.07	0.6	4
518	C	-	3	3.5	0.2	0.006	0.007	0.125	0.07	0.06	0.07	0.008	0.002	0.10	0.6	4
648	A	6.0	3	0.9	0.1	0.004	0.004	0.093	0.08	0.08	0.03	0.005	0.002	0.02	1.1	3
	B	7.2	3	1.4	0.1	0.005	0.004	0.066	0.05	0.05	0.03	0.007	0.002	0.02	0.7	3
810	A	6.2	3	2.9	0.2	0.007	0.005	0.095	0.05	0.04	0.05	0.015	0.001	0.12	0.8	6
	B	5.4	3	3.9	0.2	0.008	0.005	0.144	0.05	0.05	0.07	0.023	0.001	0.19	0.5	4
994	A	6.1	3	2.9	0.1	0.005	0.004	0.093	0.05	0.05	0.06	0.007	0.001	0.10	0.8	5
	B	5.3	3	2.7	0.5	0.006	0.005	0.102	0.08	0.07	0.06	0.020	0.001	0.13	0.6	3
1008	C	6.0	2	2.7	0.1	0.006	0.004	0.099	0.07	0.06	0.06	0.008	0.001	0.09	0.8	4
1016	A	5.2	4	2.9	0.1	0.005	0.005	0.106	0.06	0.06	0.05	0.010	0.001	0.04	0.7	3
	B	4.7	3	6.8	0.1	0.012	0.009	0.165	0.10	0.08	0.08	0.021	0.003	0.05	0.5	4
1040	C	5.9	3	5.2	0.3	0.009	0.007	0.123	0.08	0.06	0.06	0.019	0.002	0.09	1.1	4

A . . . Surface Samples
B . . . Bottom Samples
C . . . Mid-depth Samples

TABLE 5: Index of Variation per Date, 1973.

Date		Temp %	Cond %	Turb %	pH %	Tot P %	Diss P %	Tot N %	Tot Kjeld %	T Org N %	NO_3 %	NH_3 %	NO_2 %	Tot Iron %	Chloride %	Phenol %
Jun 11	A	9.0	1.3	45	1.2	23.5	25	8.9	6.9	7.7	12.5	45.4	33.3	41.2	1.3	50
	B	8.8	1.0	27.5	1.2	15	25	9.0	10	11.1	11.8	32	50	35.3	2.1	50
Jul 9	A	6.7	0.6	51.1	2.4	30	40	13.5	13.5	12.1	21.4	47	25	58.3	4.2	100
	B	8.0	0.6	40	1.2	21.7	33.3	11.5	15	16.7	13.3	42.6	20	63.6	4.2	100
Aug 7	A	3.7	0.6	35.3	1.2	25	75	13.4	20	21.7	12.5	43.8	16.7	16.7	0	33.3
	B	4.0	0.6	35.3	2.4	28.6	33.3	12	15.4	20.8	11.1	33.3	33.3	16.7	2.2	25
Sep 4	A	2.0	0.6	35.7	4.9	27.3	50	7	4.5	5	28.6	42.1	20	33.3	5.7	-
	B	5.3	0.6	33.3	6.2	15.4	50	11.6	12.5	9.5	22.2	42.3	16.7	45.5	3.9	-
Oct 1	A	0.6	0.6	55.6	1.2	16.7	0	15.4	21.7	18.2	12.5	41.2	16.7	60	2.5	200
	B	9.7	0.6	55.6	1.2	18.2	50	4.7	4.3	4.5	12.5	38.5	16.7	57.9	1.7	
Oct 31	A	7.4	0.6	50	1.2	14.3	50	7.1	13.3	14.3	16.7	0	0	45.8	2.1	-
	B	5.1	0.6	53.8	1.2	28.6	33.3	21.9	17.2	22.2	42.9	21.1	25	59.3	2.2	-
Nov 28	A	6.3	0.6	53	0.0	28	33.3	28.6	28.6	32	31.6	45.8	40	-	4.8	100
	B	6.5	0.6	60.2	0.0	37	37.5	25.0	20	18.5	35	44.8	33.3	-	4.3	100

A . . . Surface Samples
B . . . Bottom Samples

TABLE 6: Index of Variation per Station, 1973.

Station		Temp %	Cond %	Turb %	pH %	Tot P %	Diss P %	Tot N %	Tot Kjeld %	T Org N %	NO_3 %	NH_3 %	NO_2 %	Tot Iron %	Chloride %	Phenol %
112	A	53.3	0.6	43.8	3.7	35.7	125	19.3	23.1	25	20	47.1	40	55.6	2.1	125
	B	44.9	1.0	52.4	1.2	38.9	50	28.7	35.5	34.5	18.2	50	40	0	2.6	0
501	A	34.5	1.3	60	3.6	42.9	60	20.3	20.8	22.7	33.3	45	40	50	3.3	133.3
	B	34.2	0.6	59.1	1.2	40	50	18.6	18.5	20	25	45	40	77.8	2.5	133.3
518	C	-	1.0	67.3	2.4	33.3	116.7	30.5	25.9	24	53.8	30.8	40	58.8	2.5	100
648	A	35.3	1.0	50	1.2	28.6	66.7	27.4	34.8	36.4	30	35.7	40	28.6	4.8	150
	B	41.9	1.0	60.9	1.2	35.7	100	17.1	18.5	20	27.3	36.8	40	28.6	3.0	150
810	A	36.7	1.0	61.7	2.4	38.9	100	22.2	17.2	15.4	38.5	51.7	20	70.6	3.5	150
	B	35.8	1.0	75	2.4	42.1	100	33.9	17.9	20.8	50	74.2	20	95	2.1	133.3
994	A	37.0	1.0	60.4	1.2	26.3	80	21.6	16.7	17.9	46.2	36.8	20	62.5	3.3	166.6
	B	35.8	1.0	50.9	6.3	30	100	21.9	25	24.1	42.9	69.0	25	81.3	2.6	75
1008	C	38.0	0.6	50	1.2	28.6	100	23.4	24.1	22.2	46.2	40	25	47.4	3.5	133.3
1016	A	28.9	1.3	53.7	1.2	33.3	100	24.8	20	21.4	41.7	43.5	20	26.7	2.9	100
	B	29.6	1.0	117.2	1.2	63.2	150	34.7	31.3	27.6	53.3	70	50	38.5	2.1	133.3
1040	C	38.1	1.0	88.1	3.7	42.9	140	28.3	27.6	23.1	42.9	65.5	40	50	4.6	100

A . . . Surface Samples
B . . . Bottom Samples
C . . . Mid-depth Samples

TABLE 7: Two-Way Analysis of Variance, 1973 Data

Parameter	Between Dates F (6;8)	Between Dates Significance*	Between Stations F(8;6)	Between Stations Significance*
Conductivity	20.71	S.D.	5.41	S.D.
Turbidity	15.54	S.D	3.98	S.D.
Chloride	1.99	N.S.D.	1.23	N.S.D.
Phenol	29.31	S.D.	0.82	N.S.D.
Iron	16.80	S.D.	2.60	S.D.
pH	2.43	S.D.	1.84	N.S.D.
Total P	22.03	S.D.	3.39	S.D.
Diss. P.	45.34	S.D.	0.95	N.S.D.
Total N.	21.73	S.D.	2.46	S.D.
Total Org. N.	13.04	S.D.	1.68	N.S.D.
Total Kjeld. N.	16.73	S.D.	1.91	N.S.D.
Nitrate	24.32	S.D.	2.08	N.S.D.
Nitrite	13.88	S.D.	0.93	N.S.D.
Ammonia	9.87	S.D.	2.14	N.S.D.

*Tested at 0.05 probability, S.D. means significant difference, N.S.D. means no significant difference.

TABLE 8: Two-Way Analysis of Variance, 1970-73 Data

Parameter	Between Years F(3;144)	Significance*	Between Stations F(8;144)	Significance*
Conductivity	63.02	S.D.	0.45	N.S.D.
pH	5.58	S.D.	0.49	N.S.D.
Turbidity	5.81	S.D.	3.32	S.D.
Total P	16.52	S.D.	2.02	S.D.
Total N	21.69	S.D.	1.15	N.S.D.

*Tested at 0.05 probability, S.D. means significant difference, N.S.D. means no significant difference.

TABLE 9: Difference of the Mean Yearly Values, t-test, 1970-73 Data.

Parameter	Year	Year	D.F.	t	Significance*
Conductivity	1970	1971	124	9.29	S.D.
	1970	1972	124	2.06	S.D.
	1970	1973	124	11.82	S.D.
	1971	1972	124	9.38	S.D.
	1971	1973	124	1.05	N.S.D.
	1972	1973	124	10.52	S.D.
pH	1970	1971	124	2.48	S.D.
	1970	1972	124	1.50	N.S.D.
	1970	1973	124	0.52	N.S.D.
	1971	1972	124	1.99	S.D.
	1971	1973	124	8.57	S.D.
	1972	1973	124	4.21	S.D.
Turbidity	1970	1971	124	1.37	N.S.D.
	1970	1972	124	2.61	S.D.
	1970	1973	124	2.18	S.D.
	1971	1972	124	3.64	S.D.
	1971	1973	124	3.13	S.D.
	1972	1973	124	0.258	N.S.D.
Total P	1970	1971	124	3.71	S.D.
	1970	1972	124	6.46	S.D.
	1970	1973	124	1.81	N.S.D.
	1971	1972	124	3.64	S.D.
	1971	1973	124	1.91	N.S.D.
	1972	1973	124	4.97	S.D.
Total N	1970	1971	124	8.31	S.D.
	1970	1972	124	5.67	S.D.
	1970	1973	124	2.46	S.D.
	1971	1972	124	1.67	N.S.D.
	1971	1973	124	5.23	S.D.
	1972	1973	124	3.10	S.D.

*Tested at 0.05 probability, S.D. means significant difference, N.S.D. means no significant difference.

TABLE 10

Mean Changes of Water Chemistry

1969-1973

		TREND (SLOPE)					
				Confidence Level			
				95%		99%	
Parameter	Years	Unit	Value	from	to	from	to
Conductivity	1969-1973	µmhos/cm/month	-0.181	-0.044	-0.317	+0.003	-0.364
	1970-1973		-0.088	+0.124	-0.301	+0.1987	-0.375
Turbidity	1970-1973	FTU/month	0.0423	0.0862	-0.0016	0.1015	-0.017
pH	1970-1973	unit/month	-0.0021	0.0070	-0.0112	0.0102	-0.0143
Total P	1970-1973	mg/l/month	-0.00006	0.00006	-0.00018	0.00010	-0.00022
Total N	1970-1973	mg/l/month	-0.00067	0.0017	-0.0031	0.0026	-0.0039

APPENDIX I

Table 1

WATER TEMP. ^{o}C

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	12.8	19.5	21.9	25.3	17.2	-	8.3	13.7
112	11.0	-	19.1	-	22.6		-	8.3	16.7
	1.0	14.0	17.1	22.1	25.3	17.3	-	8.3	17.4
501	11.0	9.3	16.6	18.9	21.1	17.2	-	8.3	15.2
518	2.5	11.4	18.2	20.8	24.2	17.1	12.1	8.3	16.0
	1.0	12.6	20.6	22.3	24.9	17.4	12.8	8.4	17.0
648	6.0	11.2	18.9	20.9	23.6	12.8	12.8	7.2	17.0
	1.0	11.5	20.1	22.5	25.3	17.0	13.6	8.1	16.9
810	7.0	10.7	16.1	20.4	22.6	17.0	11.1	8.1	15.1
	1.0	12.9	20.1	21.8	24.6	17.1	12.1	7.2	16.5
994	7.0	9.9	15.8	19.5	22.2	16.8	12.1	7.2	14.8
1008	3.4	10.3	18.5	21.1	23.9	17.3	11.7	7.7	15.8
	1.0	12.4	20.4	21.9	24.5	17.2	11.8	-	18.0
1016	8.2	9.0	16.0	19.9	21.4	17.2	11.8	-	15.9
1040	3.0	11.3	17.8	20.0	24.3	17.1	11.1	7.2	15.5
Mean	Surface	12.2	19.3	21.7	24.8	17.2	12.2	7.9	-
	Bottom	10.2	17.4	20.1	22.7	16.5	11.8	7.7	-

In Tables 1 to 16 mid-depth results are included in both surface and bottom means per survey.

APPENDIX I

Table 2

CONDUCTIVITY µmhos/cm

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	312	313	312	310	315		310	312
112	11.0	-	315	-	309	-	-	310	311
	1.0	309	314	311	304	314	-	310	310
501	11.0	312	317	314	315	315	-	310	314
518	2.5	316	317	314	310	315	316	310	314
	1.0	312	315	308	308	314	313	310	311
648	6.0	316	316	309	310	314	314	310	313
	1.0	318	315	314	310	315	311	315	314
810	7.0	317	313	313	310	315	313	310	313
	1.0	313	318	313	307	315	311	314	313
994	7.0	312	320	314	315	316	313	316	315
1008	3.4	312	317	313	310	312	312	315	313
	1.0	306	318	312	309	310	312	310	311
1016	8.2	310	317	313	310	312	314	310	312
1040	3.0	315	316	314	309	317	309	310	313
Mean*	Surface	313	316	312	309	314	312	312	-
	Bottom	314	316	313	311	315	313	311	-

APPENDIX I

Table 3

TURBIDITY - FORMAZIN TURB. UNITS

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	2.1	1.1	1.1	1.5	1.1	-	2.9	1.6
112	11.0	-	1.8	-	1.2	-	-	3.3	2.1
	1.0	1.4	1.2	0.7	1.1	1.3	-	3.3	1.5
501	11.0	4.3	2.0	1.2	1.1	1.5	-	3.1	2.2
518	2.5	4.8	5.7	1.8	1.2	5.6	5.5	12.0	5.2
	1.0	2.1	2.2	0.9	1.0	1.0	1.7	3.5	1.8
648	6.0	2.3	2.8	1.2	1.8	1.4	1.4	5.3	2.3
	1.0	4.6	5.9	2.2	1.0	2.8	8.7	8.0	4.7
810	7.0	4.3	4.8	1.4	1.7	3.5	12.0	8.8	5.2
	1.0	6.4	5.2	1.9	1.1	3.7	5.3	9.8	4.8
994	7.0	3.0	5.4	2.7	2.6	7.4	6.5	9.5	5.3
1008	3.4	6.1	6.8	2.4	2.4	3.2	7.5	9.3	5.4
	1.0	5.0	6.4	2.2	1.7	3.0	2.6	9.8	4.4
1016	8.2	3.7	5.3	1.0	2.3	3.6	3.5	21.0	5.8
1040	3.0	3.8	5.8	2.1	1.7	2.7	9.2	16.0	5.9
Mean	Surface	4.0	4.5	1.7	1.4	2.7	5.8	8.3	-
	Bottom	4.0	4.5	1.7	1.8	3.6	6.5	9.8	-

APPENDIX I

Table 4

pH - SU

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	8.4	8.4	8.4	7.6	8.2	-	8.1	8.2
112	11.0	-	8.3	-	8.1	-	-	8.1	8.2
	1.0	-	-	8.4	8.6	7.9	-	8.1	8.3
501	11.0	8.2	-	8.4	8.2	-	-	8.1	8.2
518	2.5	8.2	8.1	8.4	8.5	8.2	8.2	8.1	8.2
	1.0	8.3	8.4	8.5	8.5	8.3	8.3	8.1	8.3
648	6.0	8.3	8.3	8.4	8.5	-	8.3	8.1	8.3
	1.0	8.2	8.1	8.4	8.4	8.0	8.2	8.1	8.2
810	7.0	8.2	8.1	8.5	8.5	-	8.2	8.1	8.3
	1.0	8.2	8.1	8.2	8.4	8.2	8.3	8.1	8.2
994	7.0	8.1	8.1	8.2	7.1	-	-	8.1	7.9
1008	3.4	8.1	8.1	8.1	8.3	8.2	8.3	8.1	8.2
	1.0	8.0	8.1	8.2	8.1	8.2	8.3	8.1	8.1
1016	8.2	8.0	8.1	8.1	8.1	-	8.3	8.1	8.1
1040	3.0	8.2	8.0	8.4	7.5	8.0	8.2	8.1	8.1
Mean	Surface	8.2	8.2	8.3	8.2	8.1	8.3	8.1	-
	Bottom	8.2	8.1	8.3	8.1	8.1	8.3	8.1	-

APPENDIX I

Table 5

TOTAL PHOSPHORUS AS P mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	0.014	0.011	0.012	0.008	0.014	-	0.022	0.0135
112	11.0	-	0.026	-	0.014	-	-	0.015	0.0183
	1.0	0.010	0.027	0.011	0.015	0.009	-	0.014	0.0143
501	11.0	0.023	0.019	0.011	0.011	0.008	-	0.015	0.0145
518	2.5	0.016	0.019	0.016	0.011	0.014	0.020	0.030	0.0180
	1.0	0.014	0.019	0.015	0.007	0.010	0.016	0.017	0.0140
648	6.8	0.014	0.017	0.009	0.011	0.008	0.015	0.023	0.0139
	1.0	0.021	0.017	0.018	0.009	0.011	0.021	0.031	0.0183
810	7.0	0.019	0.030	0.014	0.010	0.010	0.029	0.022	0.0191
	1.0	0.020	0.015	0.020	0.016	0.014	0.023	0.027	0.0193
994	7.0	0.021	0.023	0.018	0.017	0.009	0.023	0.027	0.0197
1008	3.4	0.019	0.029	0.021	0.014	0.014	0.022	0.025	0.0206
	1.0	0.014	0.017	0.013	0.010	0.010	0.019	0.024	0.0153
1016	8.2	0.022	0.019	0.011	0.013	0.011	0.012	0.045	0.0190
1040	3.0	0.023	0.025	0.014	0.013	0.010	0.023	0.037	0.0207
Mean	Surface	0.017	0.020	0.016	0.011	0.012	0.021	0.025	-
	Bottom	0.020	0.023	0.014	0.013	0.011	0.021	0.027	-

APPENDIX I

Table 6

DISSOLVED PHOSPHORUS AS P mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
112	1.0	0.005	0.002	0.001	0.001	0.002	-	0.015	0.0043
	11.0	-	0.006	-	0.003	-	-	0.008	0.0057
501	1.0	0.002	0.008	0.007	0.002	0.002	-	0.008	0.0048
	11.0	0.002	0.004	0.004	0.002	0.002	-	0.008	0.0037
518	2.5	0.004	0.006	0.003	0.003	0.003	0.003	0.022	0.0063
648	1.0	0.002	0.008	0.004	0.003	0.003	0.007	0.012	0.0056
	6.0	0.003	0.004	0.002	0.002	0.002	0.003	0.013	0.0041
810	1.0	0.004	0.003	0.002	0.002	0.002	0.004	0.017	0.0049
	7.0	0.004	0.011	0.002	0.002	0.002	0.002	0.015	0.0054
994	1.0	0.003	0.002	0.009	0.001	0.002	0.003	0.012	0.0046
	7.0	0.004	0.005	0.004	0.003	0.002	0.004	0.016	0.0054
1008	3.4	0.005	0.005	0.002	0.001	0.002	0.0	0.013	0.0043
1016	1.0	0.005	0.004	0.003	0.003	0.002	0.003	0.015	0.0050
	8.2	0.005	0.005	0.002	0.001	0.003	0.002	0.027	0.0064
1040	3.0	0.005	0.004	0.002	0.001	0.002	0.003	0.021	0.0054
Mean	Surface	0.0039	0.0047	0.0037	0.0019	0.0022	0.0036	0.0150	-
	Bottom	0.0040	0.0056	0.0026	0.0020	0.0023	0.0027	0.0159	-

APPENDIX I

Table 7

TOTAL NITROGEN mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
112	1.0	0.393	0.414	0.267	0.285	0.437	-	0.383	0.363
	11.0	-	0.554	-	0.327	-	-	0.373	0.418
501	1.0	0.392	0.444	0.337	0.267	0.267	-	0.333	0.340
	11.0	0.442	0.504	0.315	0.378	0.347	-	0.334	0.387
518	2.5	0.452	0.514	0.285	0.295	0.315	0.394	0.617	0.410
648	1.0	0.422	0.444	0.297	0.276	0.286	0.434	0.213	0.339
	6.0	0.392	0.504	0.379	0.307	0.316	0.394	0.413	0.386
810	1.0	0.483	0.535	0.385	0.325	0.296	0.444	0.526	0.428
	7.0	0.452	0.475	0.316	0.315	0.325	0.624	0.466	0.425
994	1.0	0.463	0.484	0.376	0.305	0.345	0.463	0.576	0.430
	7.0	0.512	0.645	0.394	0.396	0.335	0.483	0.495	0.466
1008	3.4	0.462	0.574	0.395	0.305	0.326	0.384	0.515	0.423
1016	1.0	0.493	0.605	0.345	0.316	0.346	0.394	0.495	0.428
	8.2	0.522	0.656	0.377	0.388	0.316	0.333	0.730	0.475
1040	3.0	0.493	0.586	0.336	0.325	0.295	0.424	0.588	0.435
Mean	Surface	0.450	0.511	0.336	0.300	0.324	0.420	0.472	-
	Bottom	0.466	0.557	0.350	0.337	0.322	0.434	0.503	-

APPENDIX I

Table 8

TOTAL KJELDAHL N mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
112	1.0	0.25	0.31	0.18	0.20	0.34	-	0.26	0.26
	11.0	-	0.43	-	0.24	-	-	0.25	0.31
501	1.0	0.27	0.33	0.25	0.22	0.17	-	0.22	0.24
	11.0	0.30	0.36	0.23	0.24	0.25	-	0.22	0.27
518	2.5	0.28	0.37	0.19	0.21	0.23	0.28	0.34	0.27
648	1.0	0.27	0.32	0.21	0.21	0.20	0.33	0.09	0.23
	6.0	0.24	0.37	0.27	0.23	0.23	0.29	0.27	0.27
810	1.0	0.31	0.36	0.29	0.23	0.22	0.29	0.33	0.29
	7.0	0.28	0.30	0.24	0.22	0.24	0.36	0.29	0.28
994	1.0	0.29	0.33	0.29	0.23	0.25	0.36	0.33	0.30
	7.0	0.33	0.46	0.30	0.29	0.23	0.38	0.25	0.32
1008	3.4	0.28	0.42	0.32	0.22	0.24	0.25	0.28	0.29
1016	1.0	0.31	0.43	0.28	0.23	0.25	0.29	0.31	0.30
	8.2	0.34	0.48	0.28	0.28	0.23	0.22	0.42	0.32
1040	3.0	0.32	0.43	0.24	0.23	0.21	0.27	0.34	0.29
Mean	Surface	0.29	0.37	0.25	0.22	0.23	0.30	0.28	-
	Bottom	0.30	0.40	0.26	0.24	0.23	0.29	0.30	-

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Table 9

TOTAL ORGANIC N mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
112	1.0	0.23	0.29	0.17	0.19	0.31	-	0.25	0.24
	11.0	-	0.40	-	0.22	-	-	0.24	0.29
501	1.0	0.25	0.31	0.22	0.19	0.16	-	0.21	0.22
	11.0	0.28	0.33	0.21	0.21	0.24	-	0.21	0.25
518	2.5	0.25	0.34	0.17	0.19	0.21	0.26	0.30	0.25
648	1.0	0.26	0.30	0.20	0.20	0.19	0.31	0.07	0.22
	6.0	0.22	0.34	0.26	0.21	0.22	0.27	0.25	0.25
810	1.0	0.28	0.30	0.27	0.21	0.20	0.27	0.30	0.26
	7.0	0.26	0.22	0.22	0.19	0.23	0.34	0.25	0.24
994	1.0	0.28	0.30	0.28	0.21	0.23	0.34	0.31	0.28
	7.0	0.31	0.40	0.29	0.24	0.22	0.36	0.22	0.29
1008	3.4	0.26	0.39	0.31	0.20	0.23	0.23	0.25	0.27
1016	1.0	0.29	0.39	0.27	0.20	0.23	0.27	0.29	0.28
	8.2	0.31	0.41	0.27	0.25	0.21	0.21	0.38	0.29
1040	3.0	0.28	0.37	0.22	0.22	0.20	0.25	0.30	0.26
Mean	Surface	0.26	0.33	0.23	0.20	0.22	0.28	0.25	-
	Bottom	0.27	0.36	0.24	0.21	0.22	0.27	0.27	-

APPENDIX I

Table 10

NITRATE NO_3-N mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
112	1.0	0.14	0.10	0.08	0.08	0.09	-	0.12	0.10
	11.0	-	0.12	-	0.08	-	-	0.12	0.11
501	1.0	0.12	0.11	0.08	0.04	0.09	-	0.11	0.09
	11.0	0.14	0.14	0.08	0.13	0.09	-	0.11	0.12
518	2.5	0.17	0.14	0.09	0.08	0.08	0.11	0.27	0.13
648	1.0	0.15	0.12	0.08	0.06	0.08	0.10	0.12	0.10
	6.0	0.15	0.13	0.10	0.07	0.08	0.10	0.14	0.11
810	1.0	0.17	0.17	0.09	0.09	0.07	0.15	0.19	0.13
	7.0	0.17	0.17	0.07	0.09	0.08	0.26	0.17	0.14
994	1.0	0.17	0.15	0.08	0.07	0.09	0.10	0.24	0.13
	7.0	0.18	0.18	0.09	0.10	0.10	0.10	0.24	0.14
1008	3.4	0.18	0.15	0.07	0.08	0.08	0.13	0.23	0.13
1016	1.0	0.18	0.17	0.06	0.08	0.09	0.10	0.18	0.12
	8.2	0.18	0.17	0.09	0.10	0.08	0.11	0.30	0.15
1040	3.0	0.17	0.15	0.09	0.09	0.08	0.15	0.24	0.14
Mean	Surface	0.16	0.14	0.08	0.07	0.08	0.12	0.19	-
	Bottom	0.17	0.15	0.09	0.09	0.08	0.14	0.20	-

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Table 11

AMMONIA NH_3-N mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	0.02	0.02	0.01	0.01	0.03	-	0.01	0.017
112	11.0	-	0.03	-	0.02	-	-	0.01	0.020
	1.0	0.02	0.02	0.03	0.03	0.01	-	0.01	0.020
501	11.0	0.02	0.03	0.02	0.03	0.01 L	-	0.01	0.020
518	2.5	0.03	0.03	0.02	0.02	0.02	0.02	0.04	0.026
	1.0	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.014
648	6.0	0.02	0.03	0.01 L	0.02	0.01	0.02	0.02	0.019
	1.0	0.03	0.06	0.02	0.02	0.02	0.02	0.03	0.029
810	7.0	0.02	0.08	0.02	0.03	0.01	0.02	0.04	0.031
	1.0	0.01	0.03	0.01	0.02	0.02	0.02	0.02	0.019
994	7.0	0.02	0.06	0.01	0.05	0.01	0.02	0.03	0.029
1008	3.4	0.02	0.03	0.01	0.02	0.01L	0.02	0.03	0.020
	1.0	0.02	0.04	0.01	0.03	0.02	0.02	0.02	0.023
1016	8.2	0.03	0.07	0.01	0.03	0.02	0.01	0.04	0.030
1040	3.0	0.04	0.06	0.02	0.01	0.01	0.02	0.04	0.029
Mean	Surface	0.022	0.034	0.016	0.019	0.017	0.020	0.024	-
	Bottom	0.025	0.047	0.015	0.026	0.013	0.019	0.029	-

L means less than

APPENDIX I

Table 12

NITRITE NO_2-N mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	0.003	0.004	0.007	0.005	0.007	-	0.003	0.0048
112	11.0	-	0.004	-	0.007	-	-	0.003	0.0047
	1.0	0.002	0.004	0.007	0.007	0.007	-	0.003	0.0050
501	11.0	0.002	0.004	0.005	0.008	0.007	-	0.004	0.0050
518	2.5	0.002	0.004	0.005	0.005	0.005	0.004	0.007	0.0046
	1.0	0.002	0.004	0.007	0.006	0.006	0.004	0.003	0.0046
648	6.0	0.002	0.004	0.009	0.007	0.006	0.004	0.003	0.0050
	1.0	0.003	0.005	0.005	0.005	0.006	0.004	0.006	0.0049
810	7.0	0.002	0.005	0.006	0.005	0.005	0.004	0.006	0.0047
	1.0	0.003	0.004	0.006	0.005	0.005	0.003	0.006	0.0046
994	7.0	0.002	0.005	0.004	0.006	0.005	0.003	0.005	0.0043
1008	3.4	0.002	0.004	0.005	0.005	0.006	0.004	0.005	0.0044
	1.0	0.003	0.005	0.005	0.006	0.006	0.004	0.005	0.0049
1016	8.2	0.002	0.006	0.007	0.008	0.006	0.003	0.010	0.0060
1040	3.0	0.003	0.006	0.006	0.005	0.005	0.004	0.008	0.0053
Mean	Surface	0.0026	0.0044	0.0059	0.0054	0.0059	0.0039	0.0051	-
	Bottom	0.0021	0.0047	0.0059	0.0062	0.0056	0.0037	0.0057	0.0057

APPENDIX I

Table 13

CHLORIDE mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	24	23	23	24	23	-	24	24
112	11.0	-	24	-	23	-	-	23	23
	1.0	23	23	23	24	24	-	25	24
501	11.0	24	23	24	25	24	-	24	24
518	2.5	24	24	23	-	24	24	25	24
	1.0	24	23	23	21	24	24	23	23
648	6.0	23	23	23	22	24	24	23	23
	1.0	24	24	23	-	24	23	22	23
810	7.0	24	24	24	-	23	23	23	24
	1.0	24	23	23	23	25	24	23	24
994	7.0	23	23	23	23	24	23	22	23
1008	3.4	24	24	23	23	24	23	22	23
	1.0	24	24	23	25	23	24	24	24
1016	8.2	24	24	23	23	24	23	24	24
1040	3.0	24	26	23	23	24	24	23	24
Mean	Surface	24	24	23	23	24	24	23	-
	Bottom	24	24	23	23	24	23	23	-

APPENDIX I

Table 14

TOTAL IRON mg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	0.15	0.05	0.05	0.15	0.05	-	-	0.09
112	11.0	-	0.05	-	0.05	-	-	-	0.05
	1.0	0.04	0.05	0.05	0.10	0.08	-	-	0.06
501	11.0	0.20	0.05	0.05	0.05	0.08	-	-	0.09
518	2.5	0.22	0.11	0.05	0.10	0.32	0.20	-	0.17
	1.0	0.09	0.05	0.05	0.10	0.05	0.07	-	0.07
648	6.0	0.08	0.05	0.05	0.10	0.05	0.07	-	0.07
	1.0	0.16	0.16	0.05	0.10	0.14	0.40	-	0.17
810	7.0	0.15		0.05	0.10	0.18	0.54	-	0.20
	1.0	0.23	0.13	0.05	0.05	0.23	0.27	-	0.16
994	7.0	0.10	0.13	0.08	0.10	0.38	-	-	0.16
1008	3.4	0.22	0.27	0.07	0.15	0.13	0.31	-	0.19
	1.0	0.19	0.16	0.06	0.15	0.16	0.15	-	0.15
1016	8.2	0.14	0.12	0.05 L	0.10	0.19	0.17	-	0.13
1040	3.0	0.25	0.13	0.06	0.20	0.15	0.30	-	0.18
Mean	Surface	0.17	0.12	0.06	0.12	0.15	0.24	-	-
	Bottom	0.17	0.11	0.06	0.11	0.19	0.27	-	-

APPENDIX I

Table 15

PHENOLS - µg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	12	0	6	-	0	-	0	3.6
112	11.0	-	0	-	-	-	-	0	0.0
	1.0	2	0	10	-	0	-	4	3.2
501	11.0	6	0	6	-	-	-	0	3.0
518	2.5	8	2	10	-	0	0	4	4.0
	1.0	4	0	6	-	2	0	0	2.0
648	6.0	6	0	-	-	-	0	0	1.5
	1.0	4	2	15	-	0	0	4	4.2
810	7.0	4	0	10	-	-	0	2	3.2
	1.0	6	0	12	-	0	0	0	3.0
994	7.0	2	0	8	-	-	-	4	3.5
1008	3.4	3	2	10	-	0	0	2	2.8
	1.0	8	2	6	-	0	0	3	3.2
1016	8.2	8	0	6	-	-	0	3	3.4
1040	3.0	10	2	6	-	6	0	2	4.3
Mean	Surface	6.3	1.1	9.0	-	0.9	0	2.1	-
	Bottom	5.9	0.7	8.0	-	2.0	0	1.9	-

APPENDIX I

Table 16

CHLOROPHYLL A µg/l

Station	Depth, m	June 11	July 9	August 7	Sept. 4	Oct. 1	Oct. 31	Nov. 28	Mean
	1.0	-	-	-	1.2	2.0	-	3.4	2.20
112	11.0	-	-	-	-	-	-	-	-
	1.0	-	-	-	1.2	1.2	-	3.8	2.07
501	11.0	-	-	-	-	-	-	-	1.50
518	2.5	-	-	-	1.1	1.4	-	3.1	1.87
	1.0	-	-	-	1.1	1.4	-	3.1	1.87
648	6.0	-	-	-	-	-	-	-	-
	1.0	-	-	-	1.3	1.3	-	3.8	2.13
810	7.0	-	-	-	-	-	-	-	-
	1.0	-	-	-	1.8	2.4	-	4.2	2.80
994	7.0	-	-	-	-	-	-	-	-
1008	3.4	-	-	-	1.2	-	-	3.4	2.30
	1.0	-	-	-	1.2	-	-	4.6	2.90
1016	8.2	-	-	-	-	-	-	-	-
1040	3.0	-	-	-	1.1	1.7	-	4.0	2.27
Mean	Surface	-	-	-	1.24	1.63	-	3.71	-
	Bottom	-	-	-	-	-	-	-	-

APPENDIX I, Table 17: Additional Parameters, 1973 (sampled 1.10.73)

Sta.	Boron as B mg/l	Total Cadmium mg/l	Total Chromium mg/l	Total Copper mg/l	Total Lead mg/l	Total Mercury ug/l	Total Nickel mg/l	Total Vanadium mg/l	Total Zinc mg/l	BOD mg/l	Total Solids mg/l	COD mg/l	TOC mg/l	Sulphate mg/l	Flouride mg/l	Simple Cyanide	H_2S mg/l
112	0.10L	0.00	0.02L	0.03L	0.007L	0.05L	0.04L	0.05L	0.03L	0.6	190	20L	6	28	0.1	0.01L	0.0
501	0.10L	0.00	0.02L	0.04	0.007L	0.05L	0.04L	0.05L	0.03L	0.6	190	20L	4	25	0.1	0.01L	0.0
518	0.10L	0.00	0.02L	0.03	0.007L	0.05L	0.04L	0.05L	0.03L	0.4	190	20L	5	28	0.1	0.01L	0.0
648	0.10L	0.00	0.02L	0.03	0.007L	0.05L	0.04L	0.05L	0.03L	0.6	180	20L	2	28	0.1	0.01L	0.0
810	0.02L	0.00	0.02L	0.03L	0.007L	0.05L	0.04L	0.05L	0.03	0.4	200	20L	4	29	0.1	0.01L	0.0
994	0.10L	0.00	0.02L	0.03L	0.007L	0.05L	0.04L	0.05L	0.03L	0.4	200	20L	6	26	0.1	0.01L	0.0
1008	0.05L	0.00	0.02L	0.03	0.007L	0.05L	0.04L	0.05L	0.03L	0.4	200	20L	3	26	0.2	0.01L	0.0
1016	0.09L	0.00	0.02L	0.03	0.007L	0.05L	0.04L	0.05L	0.21	0.4	200	20L	5	26	0.2	0.01L	0.0
1040	0.10L	0.00	0.02L	0.11	0.025	0.05L	0.04L	0.05L	0.04	0.4	210	20L	6	28	0.1	0.01L	0.0

L-Actual value is less than reported value